Substitute for claim 2.

2. (Amended) A homopolymer or copolymer of olefinically unsaturated compounds, prepared by copolymerizing the compounds in a reaction medium of reactive diluents for thermally curable multiubstance mixtures.

Substitute for claim 3.

3. (Amended) A liquid composition of claim 1 wherein compounds selected from the group consisting of polyols, epoxides and mixtures thereof are used as reactive diluents.

Substitute for claim 4.

4. (Amended) A liquid composition of claim 3, wherein the polyols used comprise

(i) hyperbranched compounds containing a tetrafunctional central group derived from compounds selected from the group consisting of ditrimethylolpropane, diglycerol, ditrimethylolethane and mixtures thereof or a tetrafunctional central group of the general formula I

$$C[-A_q-X-]_m[-A_r-x-]_n[-A_s-X-]_o[A_t-X-]_p \qquad (I),$$

in which the indices and variables have the following definitions:

m + n + o + p = 4; where

m is an integer from 1 to 3, and

n, o and p are 0 or an integer from 1 to 3;

q, r, s and t are an integer from 1 to 5, where $q \geq r, s, t$,

X is -0-, -S- or -NH-;

A is $-CR_2-$; where

R is selected from the group consisting of -H, -F, -Cl, -Br, -CN, $-NO_2$

C_1-C_3 alkyl or haloalkyl or C_1-C_3 alkoxy radical or, if q, r, s and/or t are at least 2, R is selected from the group consisting of a C_2-C_4 alkanediyl, oxaalkanediyl radical having 2 to 5 carbon atoms, an oxygen atom -O- which bridges from 3 to 5 carbon atoms of the radical -A- and mixtures thereof;

(ii) cyclic and/or acyclic C_9-C_{16} alkanes

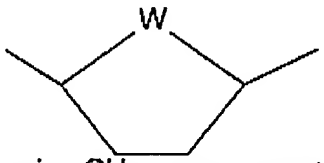
functionalized with at least two hydroxyl groups or at least one hydroxyl group and at least one thiol group;

(iii) polyols obtained by hydroformylating oligomers of the formula (III),

$$R^3R^4C=[CH\text{-}R^2\text{-}CH]_v=CR^5R^6 \quad (III),$$

in which R^2 is $-(-CH_2-)_w-$,
in which the index w is an integer from 1 to 6, or

=



in which w is $-CH_2-$ or an oxygen atom;

R^3, R^4, R^5 and R^6 independently of one another are hydrogen atoms or alkyl; and the index v is an integer from 1 to 15.

Substitute for Claim 5.

5. (Amended) A liquid composition of claim 4, wherein the polyols (I) used comprise a hyperbranched compound obtained by reacting 2,2-bishydroxymethylbutane-1,4-diol with phthalic anhydride and then reacting

Sub Bl

the resultant intermediate with glycidyl esters of tertiary, highly branched, saturated monocarboxylic acids,

the polyols (ii) used comprise dialkyloctanediols, and

the polyols (iii) used comprise hydroformylated and hydrogenated oligomers, obtained by metathesis from acyclic monoolefins and cyclic monoolefins, hydroformylation of the -resultant oligomers and subsequent hydrogenation, the cyclic monoolefin used comprising cyclopentene and the acyclic monoolefins used comprising hydrocarbon mixtures obtained in petroleum processing by cracking (C_5 cut), and the polyols (iii) having a hydroxyl number (OHN) of from 200 to 60, a number-average molecular weight M_n, of from 400 to 1 000, a mass-average molecular weight M_w, in the range from 600 to 2 000, and a polydispersity M_n/M_w, from 1.4 to 3.

Substitute for claim 6.

6. (Amended) A liquid composition of claim 3, wherein the reactive diluents containing epoxide groups comprise

(iv) glycidyl ethers of polyols or polyphenols such as glycerol, diglycerol, glucitol, erythritol, pentaerythritol, dipentaerythritol, trimethylolpropane, trimethylolethane, ditrimethylolpropane, ditrimethylolethane, tetrakis(2-hydroxyethyl)ethane, tetrakis(3- hydroxypropyl)methane, the tetraols II1 to II10:

HO- (-CH_2-)$_2$-C (-CH_2-OH) $_3$,
(II1)

HO - (- CH_2-)$_3$C (- CH-$_2$ - OH)$_3$,
(II2)

HO- (-CH_2-)$_4$-C (-CH_2-OH)$_3$,

(II3)

HO- (-CH_2-)$_5$-C (-CH--OH)$_3$,

(II4)

[HO- (-CH_2-)$_2$-]$_2$C(CH_2-OH)$_2$,

(II5)

[HO- (-CH_2-)$_2$-]$_3$C-CH_2-OH,

(II6)

HO- (-CH_2-)$_3$-C[-(-CH_2-)$_2$-OH]$_3$,

(II7)

HO- (-CH_2-)$_3$-C[- (-CH_2-)$_2$-OH]$_2$ (-CH_2-OH)

(II8)

HO- (-CH_2-)$_4$-C (-CH_2-OH)[- (-CH_2-)$_2$-OH][-(-CH_2-)$_3$- OH] or

(II9)

HO- (-CH_2-)$_5$-C (-CH_2-OH)[- (-CH_2-)$_4$-OH] 2

(II10);

the polyols (i), (ii) and (iii), pyrocatechol, resorcinol, hydroquinone, pyrogallol, phloroglucinol, (p-hydroxy- phenyl)phloroglucinol, 5-(7-hydroxynaphth-l-yl)pyrogallol, bisphenol F, bisphenol A or novolaks;

(v) low molecular mass epoxy resins or oligomers which contain glycidyl-containing monomers (A6) in copolymerized form;

(vi) glycidyl esters of Versatic® acid;

(vii) epoxy resin esters of saturated and unsaturated fatty acids;

and

(viii) epoxidized triglycerides of natural oils and esters, and mixtures thereof.

Substitute for claim 7.

7. (Amended) A liquid composition prepared by homopolymerization or copolymerization of olefinically unsaturated monomers in a Taylor reactor having an external reactor wall located within which there is a concentrically or eccentrically disposed rotor, a reactor floor and a reactor lid, which together define the annular reactor volume, at least one means for metered addition of reactants, and a means for the discharge of product, where the reactor wall and/or the rotor are or is geometrically designed in such a way that the conditions for Taylor vortex flow are met over substantially the entire reactor length in the reactor volume, in such a way that the annular gap broadens in the direction of flow traversal.

Substitute for claim 8.

8. (Amended) A process for preparing a liquid composition by free-radical copolymerization in a liquid reaction medium, which comprises using , as the reaction medium, reactive diluents for thermally curable multisubstance mixtures.

Substitute for claim 9.

9. (Amended) The process as claimed in claim 8, wherein a fraction of the reactive diluents is modified after the copolymerization with olefinically unsaturated compounds, so that the resulting liquid composition is curable by means selected from thermal, actinic light, and and electron beams, and mixtures thereof.

Substitute for claim 10.

10. (Amended) The process as claimed in claim 8, conducted in a Taylor reactor having an external reactor wall located within which there is a concentrically or eccentrically disposed rotor, a reactor floor and a reactor lid, which together define the annular reactor volume, at least one means for metered addition of reactants, and a means for the discharge of product, where the reactor wall and/or the rotor are or is geometrically designed in such a way that the conditions for Taylor vortex flow are met over substantially the entire reactor length in the reactor volume, i.e. in such a way that the annular gap broadens in the direction of flow traversal.

Please cancel claim 11 without prejudice.

Please enter the following new claims.

12. (New) A liquid compositon of claim 4, wherein A. the polyols (iii) have a hydroxyl number (OHN) of from 250 to 450, a number-average molecular weight M_n, of from 400 to 600, a mass-average molecular weight M_w, in the range from 600 to 1100, and a polydispersity M_n/M_w, from 1.7 to 1.9.

13. (New) A liquid composition of claim 4 wherein the polyols (ii) comprise diethyl- octanediols.

14. (New) The process as claimed in claim 8, wherein a fraction of the reactive diluents is modified after the copolymerization with monomers selected from the group consisting of (A2), (A5) and/or (A6) and mixtures thereof, so that the resulting liquid composition is curable by means selected from thermal, actinic light, and electron beam, and mixtures thereof .

15. (New) A homopolymer or copolymer as claimed in claim 2, wherein compounds selected from the group consisting of polyols, epoxides and mixtures thereof are used as reactive diluents.

16. (New) A homopolymer or copolymer as claimed in claim 15, wherein the polyols used comprise

(ii) hyperbranched compounds containing a tetrafunctional central group derived from compounds selected from the group consisting of ditrimethylolpropane, diglycerol, ditrimethylolethane and mixtures thereof, and a tetrafunctional central group of the general formula I

$C[-A_q-X-]_m[-A_r-x-]_n[-A_s-X-]_o[A_t-X-]_p$ (I),

in which the indices and variables have the following definitions:

m + n + o + p = 4; where

m is an integer from 1 to 3, and

n, o and p are 0 or an integer from 1 to 3;

q, r, s and t are an integer from I to 5, where q > r, s, t;

X is -0-, -S- or -NH-;

A is $-CR_2-$; where

R is selected from the group consisting of -H, -F, -Cl, -Br, -CN, $-NO_2$ C_1-C_3 alkyl or haloalkyl or C_1-C_3 alkoxy radical or, if q, r, s and/or t are at least 2, R is a C_2-C_4 is selected from the group consisting of alkanediyl and oxaalkanediyl radicals having 2 to 5 carbon atoms and an oxygen atom -O- which bridges from 3 to 5 carbon atoms of the radical -A-;

(ii) cyclic and/or acyclic C_9-C_{16} alkanes

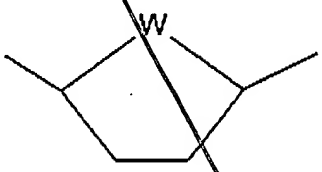
functionalized with at least two hydroxyl groups or at least one hydroxyl group and at least one thiol group;

(iii) polyols obtained by hydroformylating oligomers of the formula (III),

$$R^3R^4C=[CH-R^2-CH]_v=CR^5R^6 \qquad \text{(III)},$$

in which R^2 is $-(-CH_2-)_w-$,
in which the index w is an integer from 1 to 6, or

=



in which w is $-CH_2-$ or an oxygen atom;

R^3, R^4, R^5 and R^6 independently of one another are hydrogen atoms or alkyl; and the index v is an integer from 1 to 15.

17. (New) A homopolymer or copolymer of claim 16, wherein

the polyols (i) used comprise
a hyperbranched compounds obtained by reacting 2,2-bishydroxymethylbutane-1,4-diol with phthalic anhydride and then reacting the resultant intermediate with glycidyl esters of tertiary, highly branched, saturated monocarboxylic acids,

the polyols (ii) used comprise dialkyloctanediols, and

the polyols (iii) used comprise hydroformylated and hydrogenated oligomers, obtained by metathesis from acyclic monoolefins and cyclic

monoolefins, hydroformylation of the -resultant oligomers and subsequent hydrogenation, the cyclic monoolefin used comprising cyclopentene and the acyclic monoolefins used comprising hydrocarbon mixtures obtained in petroleum processing by cracking (C_5 cut), and the polyols (iii) having a hydroxyl number (OHN) of from 200 to 60, a number-average molecular weight M_n, of from 400 to 1 000, a mass-average molecular weight M_w, in the range from 600 to 2 000, and a polydispersity M_n/M_w, from 1.4 to 3.

18. (New) A homopolymer or copolymer of claim 15, wherein A. the polyols (iii) have a hydroxyl number (OHN) of from 250 to 450, a number-average molecular weight M_n, of from 400 to 600, a mass-average molecular weight M_w, in the range from 600 to 1100, and a polydispersity M_n/M_w, from 1.7 to 1.9.

19. (New) A homopolymer or copolymer of claim 15, wherein the polyols (ii) comprise diethyl-octanediols.

20. (New) A homopolymer or copolymer of claim 15, wherein the reactive diluents containing epoxide groups comprise

(iv) glycidyl ethers of polyols or polyphenols such as glycerol, diglycerol, glucitol, erythritol, pentaerythritol, dipentaerythritol, trimethylolpropane, trimethylolethane, ditrimethylolpropane, ditrimethylolethane, tetrakis(2-hydroxyethyl)ethane, tetrakis(3- hydroxypropyl)methane, the tetraols II1 to II10:

HO- (-CH_2-)$_2$-C (-CH_2-OH) $_3$,
(II1)

HO - (- CH_2-)$_3$C (- CH-$_2$ - OH)$_3$,
(II2)

HO- (-CH_2-)$_4$-C (-CH_2-OH)$_3$,
(II3)

HO- (-CH_2-)$_5$-C (-CH--OH)$_3$,
(II4)

[HO- (-CH_2-)$_2$-]$_2$C(CH_2-OH)$_2$,
(115)

[HO- (-CH_2-)$_2$-]$_3$C-CH_2-OH,
(II6)

HO- (-CH_2-)$_3$-C[-(-CH_2-)$_2$-OH]$_3$,
(II7)

HO- (-CH_2-)$_3$-C[- (-CH_2-)$_2$-OH]$_2$ (-CH_2-OH)
(II8)
HO- (-CH_2-)$_4$-C (-CH_2-OH)[- (-CH_2-)$_2$-OH][-(-CH_2-)$_3$- OH] and
(II9)

HO- (-CH_2-)$_5$-C (-CH_2-OH)[- (-CH_2-)$_4$-OH] 2
(II10);

the polyols (i), (ii) and (iii), pyrocatechol, resorcinol, hydroquinone, pyrogallol, phloroglucinol, (p-hydroxy- phenyl)phloroglucinol, 5-(7-hydroxynaphth-l-yl)pyrogallol, bisphenol F, bisphenol A or novolaks;

(v) low molecular mass epoxy resins or oligomers which contain glycidyl-containing monomers (A6) in copolymerized form;

Version with Markings to Show Changes Made

1. (Amended) A liquid composition, [preparable] prepared by copolymerizing olefinically unsaturated compounds in a reaction medium of reactive diluents for thermally curable multisubstance mixtures, [as reaction medium.]

2. (Amended) A homopolymer or copolymer of olefinically unsaturated compounds, [preparable] prepared by copolymerizing the compounds in a reaction medium of reactive diluents for thermally curable multiubstance mixtures, [as reaction medium.]

3. (Amended) A liquid composition [as claimed in] of claim 1 [or homopolymer or copolymer as claimed in claim 2,] wherein compounds selected from the group consisting polyols, [and/or] epoxides and mixtures thereof are used as reactive diluents.

4. (Amended) A liquid composition [or a homopolymer or copolymer as claimed in] of claim 3, wherein the polyols used comprise

(iii) hyperbranched compounds containing a tetrafunctional central group derived from compounds selected from the group consisting of ditrimethylolpropane, diglycerol, [and/or] ditrimethylolethane and mixtures thereof or a tetrafunctional central group of the general formula I

$$C[-A_q-X-]_m[-A_r-X-]_n[-A_s-X-]_o[A_t-X-]_p \qquad (I),$$

in which the indices and variables have the following definitions:

m + n + o + p = 4; where

m is an integer from 1 to 3, and

n, o and p are 0 or an integer from 1 to 3;

q, r, s and t are an integer from I to 5, where q ≥ r, s, t, [especially q > r, s, t];

X is -O-, -S- or -NH-;

A is $-CR_2-$; where

R is -H, -F, -Cl, -Br, -CN, $-NO_2$

C_1-C_3 alkyl or haloalkyl or C_1-C_3 alkoxy radical or, if q, r, s and/or t are at least 2, R is selected from the group consisting of a C_2-C_4 alkanediyl, [and/or] oxaalkanediyl radical having 2 to 5 carbon atoms, [and/or] an oxygen atom -O- which bridges from 3 to 5 carbon atoms of the radical -A- and mixtures thereof;

(ii) cyclic and/or acyclic C_9-C_{15} alkanes

functionalized with at least[o] two hydroxyl groups or at least one hydroxyl group and at least one thiol group;

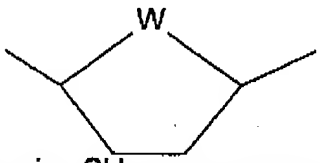
(iii) polyols [obtainable] obtained by hydroformylating oligomers of the formula (III),

$[R^3R^4C=[=CH-R^2-CH=]_v=CR^5R^6\ ]$ $R^3R^4C=[CH-R^2-CH]_v=CR^5R^6$ (III),

in which R^2 is $-(-CH_2-)_w-$,

in which the index w is an integer from 1 to 6, or

=



in which w is $-CH_2-$ or an oxygen atom;

R^3, R^4, R^5 and R^6 independently of one another are hydrogen atoms or alkyl; and the index v is an integer from 1 to 15.

5. (Amended) A liquid composition [or a homopolymer or copolymer as claimed in] of claim 4, wherein

- the polyols used comprise
- (i) hyperbranched compound [obtainable] obtained by reacting 2,2-bishydroxymethylbutane-1,4-diol with phthalic anhydride and then reacting the resultant intermediate with glycidyl esters of tertiary, highly branched, saturated monocarboxylic acids,

- the polyols (ii) used comprise dialkyloctanediols, [especially diethyl- octanediols,] and

- the polyols (iii) used comprise hydroformylated and hydrogenated oligomers, [obtainable] obtained by metathesis from acyclic monoolefins and cyclic monoolefins, hydroformylation of the -resultant oligomers and subsequent hydrogenation, the cyclic monoolefin used comprising cyclopentene and the acyclic monoolefins used comprising hydrocarbon mixtures obtained in petroleum processing by cracking (C_5 cut), and the polyols (iii) having a hydroxyl number (OHN) of from 200 to 60, [in particular from 250 to 450,] a number-average molecular weight M_n, of from 400 to 1 000, [in particular from 400 to 600,] a mass-average molecular weight M_w, in the range from 600 to 2 000, [in particular from 600 to 1100,] and a polydispersity M_n/M_w, from 1.4 to 3.[, in particular from 1.7 to 1.9.]

6. (Amended) A liquid composition [or a homopolymer or copolymer as claimed in] of claim 3, wherein the reactive diluents containing epoxide groups comprise

(iv) glycidyl ethers of polyols or polyphenols such as glycerol, diglycerol, glucitol, erythritol, pentaerythritol, dipentaerythritol, trimethylolpropane,

trimethylolethane, ditrimethylolpropane, ditrimethylolethane, tetrakis(2-hydroxyethyl)ethane, tetrakis(3- hydroxypropyl)methane, the tetraols II1 to II10:

HO- (-CH_2-)$_2$-C (-CH_2-OH) $_3$,
(II1)

HO - (- CH_2-)$_3$C (- CH_2 - OH)$_3$,
(II2)

HO- (-CH_2-)$_4$-C (-CH_2-OH)$_3$,
(II3)

HO- (-CH_2-) $_5$-C (-CH–OH)$_3$,
(II4)

[HO- (-CH_2-)$_2$-]$_2$C(CH_2-OH)$_2$,
(115)

[HO- (-CH_2-)$_2$-]$_3$C-CH_2-OH,
(II6)

HO- (-CH_2-)$_3$-C[-(-CH_2-)$_2$-OH]$_3$,
(II7)

HO- (-CH_2-)$_3$-C[- (-CH_2-)$_2$-OH]$_2$ (-CH_2-OH)
(II8)

HO- (-CH_2-)$_4$-C (-CH_2-OH)[- (-CH_2-)$_2$-OH][-(-CH_2-)$_3$- OH] or
(II9)

HO- (-CH_2-)$_5$-C (-CH_2-OH)[- (-CH_2-)$_4$-OH] 2
(II10);

the polyols (i), (ii) and (iii), pyrocatechol, resorcinol, hydroquinone, pyrogallol, phloroglucinol, (p-hydroxy- phenyl)phloroglucinol, 5-(7-hydroxynaphth-l-yl)pyrogallol, bisphenol F, bisphenol A or novolaks;

(v) low molecular mass epoxy resins or oligomers which contain glycidyl-containing monomers (A6) in copolymerized form;

(vi) glycidyl esters of Versatic® acid;

(vii) epoxy resin esters of saturated and unsaturated fatty acids; [(epoxidized oils);]

and[/or]

(viii) epoxidized triglycerides of natural oils and esters, and mixtures thereof.

7. (Amended) A liquid composition [as claimed in, any of claims 1 or 3 to 6 or a homopolymer or copolymer as claimed in any of claims 2 to 6, preparable] prepared by homopolymerization or copolymerization of olefinically unsaturated monomers in a Taylor reactor having an external reactor wall located within which there is a concentrically or eccentrically disposed rotor, a reactor floor and a reactor lid, which together define the annular reactor volume, at least one means for metered addition of reactants, and a means for the discharge of product, where the reactor wall and/or the rotor are or is geometrically designed in such a way that the conditions for Taylor vortex flow are met over substantially the entire reactor length in the reactor volume,[i.e.] in such a way that the annular gap broadens in the direction of flow traversal.

8. (Amended) A process for preparing a liquid composition [or a homopolymer or copolymer of olefinically unsaturated compounds] by free-

radical copolymerization in a liquid reaction medium, which comprises using , as the reaction medium, reactiv diluents for thermally curable multisubstance mixtures, [as the reaction medium.]

9. (Amended) The process as claimed in claim 8, wherein a fraction of the reactive diluents is modified after the copolymerization with olefinically unsaturated compounds, [especially with monomers (A2), (A5) and/or (A6),] so that the resulting liquid composition is curable by means selected from [both] thermal[ly], [and] by actinic light, and[/or] electron beams, and mixtures thereof .

10. (Amended) The process as claimed in claim 8 [or 9], conducted in a Taylor reactor having an external reactor wall located within which there is a concentrically or eccentrically disposed rotor, a reactor floor and a reactor lid, which together define the annular reactor volume, at least one means for metered addition of reactants, and a means for the discharge of product, where the reactor wall and/or the rotor are or is geometrically designed in such a way that the conditions for Taylor vortex flow are met over substantially the entire reactor length in the reactor volume, i.e. in such a way that the annular gap broadens in the direction of flow traversal.